

REMARKS

Applicant has amended method Claim 1 and dependent Claims 2, 3 and 5 to comply with the requirements of 35 U.S.C. §112 and to more distinctly define the invention. Applicant has also amended product Claims 21 and 22 to more distinctly define the invention over the cited references. Claims 23 and 24 have been added. No new matter is involved in the amendments.

In response to the rejection under 35 U.S.C. §112, applicant has amended Claim 1 to recite the positive method steps of the method for production of raw materials for candle production and for heat storage material. Claims 3 and 5 have been amended to delete the terms "preferably" and "in particular". In view of these amendments, applicant believes that the amended claims now comply with the requirements of 35 U.S.C. §101 and §112.

In the Official Action, the Examiner indicated that Claim 3 would be allowed if rewritten in independent form to include all limitations of the base claim (Claim 1) and to overcome the §112 rejection. In the statement of reasons for the indication of allowable subject matter, the Examiner stated that the prior art fails to teach or suggest the claimed reaction step of Claim 3 wherein the starting material is dehydrogenated and sterilized.

Applicant has amended Claim 1 to incorporate the reaction step of Claim 3 indicated by the Examiner to distinguish over the cited prior art. Paragraph (b) of Claim 1 recites the reaction step as dehydrogenating and sterilizing the washed and comminuted starting material. Since this reaction step is not disclosed or suggested by the prior art of record, applicant believes that amended Claim 1 defines patentable subject matter.

Claim 3 as amended recites an overpressure range of 10, Pa to 5×10^5 Pa and a temperature range of 353° K to 453° K. The specific overpressure of 3×10^5 Pa and the specific temperature of 403° K previously recited in Claim 3 now appear in new Claim 23. Claim 5 as amended recites a temperature range of 333° K to 353° K. The specific temperature of 343° K previously recited in Claim 5 now appears in new Claim 24. In view of the Examiner's

statement regarding the allowable subject matter, applicant submits that dependent Claims 3, 5, 23 and 24 define patentable subject matter.

In the Official Action, the Examiner rejected Claims 1, 2, 4, 5 7-15, 17-20 and 22 under 35 U.S.C. §103(a) as obvious over Murphy et al US 6,645,261 and Best et al US 5,928,696 in view of Kuiper US 4,278,609. Murphy was cited for disclosure of a triacylglycerol based wax (triglyceride) which can be used in candle making. According to the Examiner, Murphy discloses that the triglyceride is derived from biodegradable material produced from renewable resources (column 2, lines 12-13). Further, the Examiner notes that the triacylglycerol-based material has an Iodine Value of about 60 to about 75 (column 2, lines 65-67). Best was cited for disclosure that extraction of non-water soluble mixtures can be performed in a centrifugal field and separated (column 2, lines 45-48). The Examiner cited Kuiper for the disclosure of a process for selective hydrogenation of triglyceride oils using a platinum catalyst.

It is acknowledged by the Examiner that the cited references fail to disclose a process wherein the lipids within the mixture are processed into a uniform triglyceride. However, in the view of the Examiner, Murphy discloses that the properties of a triacylglyceride are primarily determined by (1) the chain length of the fatty acyl chains, (2) the amount and type (cis or trans) of unsaturation present in the fatty acyl chains, and (3) the distribution of the different fatty acyl chains among the triacylglycerols that make up the fat or oil. According to the Examiner, it would be within the purview of the ordinary artisan to elect the lipid material with the intent of obtaining a uniform triglyceride during the process. In the Examiner's view, it would have been obvious to use the triacylglycerol-based wax as suggested by Murphy and to hydrogenate the triglyceride with a metal catalyst as suggested by Kuiper to produce a raw material such as a wax useful in the production of candles or for heat storage.

Murphy relates to a standard procedure for wax production, in particular for the production of triacylglycerol-based waxes. In contrast, the method of the present invention does not use a triacylglycerol stock but uses a mixture of triglyceride stock.

As recited in Claim 1, the method of the present invention makes use of a mixture of food residues, old cooking fats and/or recycled food materials from the food industry and/or animal fats as the starting material. Murphy refers to a triacylglycerol-based material produced from renewable resources (column 2, lines 12-13). Also, at column 3, lines 19-22, hydrogenated vegetable oil is selected as a starting material. Examples are soybean oil and other vegetable oils such as corn, cotton, palm, olive, and canola. Thus, Murphy only makes use of primary sources of oil and triacylglycerol-based material. In contrast, the starting material of Claim 1 does not include primary sources of fat, such as oils extracted from soybeans, corn, cotton, palm and the like, but it is a mixture of garbage products.

According to Murphy, the materials suitable for wax production include triacylglycerol having a fatty acid profile with no more than 25 wt.% fatty acids having less than 18 carbon atoms. In contrast, the starting material of Claim 1 typically has between 26 wt.% and 38 wt.% fatty acid having less than 18 carbon atoms. Murphy only describes a maximum of 25 wt.% for the fatty acid profile (column 2, lines 58-61).

According to Murphy, the suitable triacylglycerol stock has a solid fat content at 10°C of about 40-60 wt.% and a solid fat content at 40°C of about 2-15 wt.% (column 2, lines 54-57). In contrast, the starting material of Claim 1 typically has a solid fat content at 10°C of 100% and a solid fat content at 40°C of about 90%.

In summary, the subject matter of Claim 1 differs from the Murphy disclosure as follows:

- (1) the choice of starting material,
- (2) the step of dehydrogenating and sterilizing the washed and comminuted starting material; and

(3) the step of isolating and processing the lipids into triglycerides.

Best discloses a process for extracting native products which are not water soluble from a native substance mixture by centrifugal force. The process disclosed by Best is focused on native products, i.e. a primary source of fats and fatty acids. In contrast, Claim 1 is directed to a process wherein the garbage material of the food industry is the starting material.

Kuiper discloses a process for hydrogenation of triglyceride oils in the presence of ammonia. Example 7 discloses the use of platinum as a catalyst in the hydrogenation of soybean oil.

Since the cited references do not disclose or suggest the step of dehydrogenating and sterilizing the starting material specified in Claim 1, applicant submits that Claim 1 defines patentable subject matter over the Murphy, Best and Kuiper references. Applicant also submits that dependent Claims 2-15 and 17-20 are patentable for at least the same reason.

Claim 21 defines a raw material for candle production and heat storage material which is produced by the method of Claim 1 (as amended) and comprises triglycerides being hydrogenated up to an iodine number ≤ 20 . Claim 22 defines a candle made from a raw material which is produced by the method of Claim 1 (as amended) and comprises triglycerides being hydrogenated up to an iodine number ≤ 20 . The specific iodine number ≤ 20 appears in the specification at page 7, line 10, and page 10, line 6.

The specified iodine number ≤ 20 is advantageous over the material disclosed by Murphy with respect to smell and color stability. Because of the comparatively high iodine number of 60 or more, the candle material of Murphy tends to become rancid and to spread an ugly smell, both in stock and during combustion. Due to the relatively low iodine number ≤ 20 , the products of Claims 21 and 22 avoid these disadvantages.

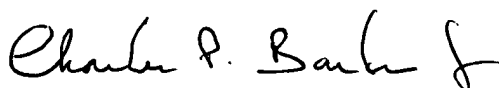
In the Official Action, the Examiner rejected Claim 21 under 35 U.S.C. §102(b) as anticipated by Yoshida JP 1067580. Yoshida was cited for the disclosure of heat storage material made from

animal or vegetable oil. Yoshida does not disclose the garbage material and method steps of Claim 1 and does not disclose the iodine number ≤ 20 of Claim 21. Accordingly, applicant believes that Claim 21 defines patentable subject matter.

In the Official Action, the Examiner rejected Claim 22 under 35 U.S.C. §102(b) as anticipated by Tsaras US 3,844,796. Tsaras was cited for the disclosure of a candle made of glycerides from animal or vegetable life. Yoshida does not disclose the garbage material and method steps of Claim 1 and does not disclose the iodine number ≤ 20 of Claim 22. Accordingly, applicant believes that Claim 22 defines patentable subject matter.

For the above reasons, applicant believes that the claims are patentable and requests allowance of all claims in this case.

Respectfully submitted,



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